Disparities in Health Status and Substance Use: Ethnicity and Socioeconomic Factors

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SYNOPSIS

Objective: This article reviews the literature on racial, ethnic, and socioeconomic disparities in morbidity and mortality, focusing on substance use and abuse.

Observations: In most populations and societies, people of higher social position live longer and remain healthier than those of lower position. Disparities in morbidity and mortality across ethnic groups also exist. Mortality rates for African Americans are about 1.6 times higher than those for white, with much higher disparities for certain causes, such as HIV/AIDS and diabetes. Disparities also exist in the level of substance use and abuse.

Conclusion: Racial and ethnic differences in health and health behaviors, including substance use and abuse, may partly reflect biological differences, but it is more likely that they can be explained largely by socioeconomic differences, cultural factors, and prejudice and discrimination, both institutional and individual.

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Introduction

This article reviews the literature on racial, ethnic, and socioeconomic disparities in substance use and abuse. It begins with a review of the broader literature on disparities in all forms of morbidity and mortality. The scholarly inquiry into disparities in other areas of health has a long history that can inform our understanding of substance use, abuse, and dependence. At the same time, caution is warranted in generalizing from the broader health literature, as many findings may not apply to substance use and abuse.

The literature of the past 100 years or so indicates that disparities in health outcomes related to socioeconomic factors are observed within and across societies and across the life course. These disparities apply to a broad array of health outcomes.

Lillie-Blanton and colleagues sought to determine the extent to which socioeconomic factors could account for observed disparities in health outcomes across racial and ethnic groups.[1] They concluded that disparities in health outcomes between whites and African Americans remain after adjusting for socioeconomic differences, especially for infant mortality, all-cause mortality, and hypertension. For these health outcomes, adjustment for socioeconomic factors dramatically, but not entirely, reduced racial disparities. Differences in substance use by whites and African Americans could largely be accounted for by socioeconomic status. (The authors considered substance use only, not abuse or dependence.)

Other researchers have reached different conclusions. Wallace found that economically disadvantaged African American men have higher levels of alcohol use and suffer more adverse consequences from alcohol than their white counterparts but that African American men of high socioeconomic status have lower levels of alcohol problems and fewer adverse consequences than their white counterparts.[2]

Estimating the magnitude of health disparities across racial and ethnic groups before and after adjusting for socioeconomic factors is critical if we are to address the NIDA conference goal of "identifying the most critical issues that determine why adverse social and health outcomes persist among minority populations." If racial and ethnic health disparities are reduced or eliminated once socioeconomic factors are taken into account, they could be addressed through social policies, namely, reducing large socioeconomic disparities between racial and ethnic groups in the United States. Once socioeconomic factors have been accounted for, it is possible to estimate the extent to which other factors play a role.

Genetic differences have been proposed to explain the remaining racial disparities in mortality and morbidity. While there is considerable biological variation in human populations, it has been increasingly recognized that commonly used racial categories fail to capture this diversity. As the American Association of Physical Anthropology notes, "pure races in the sense of genetically homogenous populations do not exist in the human species today, nor is there any evidence that they have ever existed in the past."[3,4] There is evidence of greater genetic variability within major racial groups than between such groups. It is unlikely that racial disparities in health status in the United States are due largely to genetic factors.

Socioeconomic Disparities in Health Status

The Whitehall studies on health disparities among British civil servants from the Greater London area, conducted by Marmot and colleagues, are classics in the social inequalities literature. The 10-year prospective follow-up study of approximately 10,000 adults revealed that every grade of employment had lower levels of morbidity and mortality than the one below.[5] The 25-year follow-up of this cohort supported the original finding: the lower the grade of employment, the higher the mortality.[6] This socioeconomic gradient has been found across age groups and in recent samples as well. The Whitehall II study, which followed a younger cohort of British civil servants, including 10,308 men and women working in London between 1985 and 1988, also showed a continuous relationship between employment grade and several indices of ill health.[7] Similar results have been demonstrated in the United States for physical and mental morbidity in adult men and women. These gradients may reflect differences in health behaviors (alcohol consumption, smoking, exercise), which may account for 40%-50% of the variation in mortality and self-reported health.[8]

Smith and colleagues documented socioeconomic differentials in mortality risk in Victorian Scotland.[9] They inspected grave markers in eight graveyards in Glasgow, Scotland, and recorded the height and principal material of each marker, as well as the year and age of death of the person. The 843 markers yielded data on 725 men and 624 women who died between 1801 and 1920. The height of the grave marker and age at death were significantly correlated ($r = 0.14$); for every additional meter in height of the grave

marker, the age of death was 1.42 years later for men and 2.19 years later for women. After adjustment for changes in marker construction over time, these values were estimated at 1.93 years for men and 2.92 years for women. The gradient for both marker height and material of construction (granite, marble, or sandstone) suggests that socioeconomic factors are associated with the disparities in mortality.

Similar studies, including studies of 15th century Florence[10] and 19th century Rhode Island,[11] have also demonstrated a gradient between material well-being and mortality risk.[10,11] Social inequality in health is thus not a recent phenomenon.

For adults with health problems, data from the National Health Interview Survey show an inverse relation between family income and physician contact. For 1993-95, 22% of adults between 18 and 64 reported a health problem, including self-reports of fair or poor health, limitation in activity due to a chronic condition, or 10 or more bed-days in the past year. Twelve percent of the people with health problems had not visited a physician in the past year, in contrast with 31% of the population without a health problem. These data reveal a strong socioeconomic gradient in lack of physician contact for adults with health problems. Women with family incomes below the federal poverty level were almost three times as likely not to have had physician contact in the past year as women with higher incomes (twice the poverty level); poor men were about twice as likely as nonpoor men not to have seen a doctor. Within family income levels, rates of physician contact for adults with health problems were similar for whites and African Americans. At all economic levels, the rates of physician contact were lower for Hispanic Americans than for whites or African Americans.[12]

Data on avoidable hospitalizations are another measure of access to ambulatory medical care. Avoidable hospitalizations are defined as hospital stays with a primary diagnosis for which hospitalization may potentially be avoided if ambulatory care is provided in a timely manner. These include hospitalizations for pneumonia, asthma, congestive heart failure, immunizable conditions, and other diseases. Data from the National Hospital Discharge Survey from 1989 to 1991 indicate that the rate of avoidable hospitalizations is inversely associated with the median income of the patient's area of residence (figure 1). The avoidable hospitalization rate among residents of the lowest income areas was 2.4 times that for residents of the highest income areas. In addition, for each income level, the avoidable hospitalization rate for African Americans was higher than for whites, with the largest race differential at the lowest income level. For African American adults living in the lowest income areas, the rate of avoidable hospitalizations was 2.7 times that for whites living in similar income areas. In higher income areas, African Americans had about twice as many avoidable hospitalizations as whites.

These data reflect substantial disparities in income, race, and ethnicity in the access to and utilization of health care. Similar analysis should be conducted to uncover differences in the way early levels of substance use are identified and treated by different service sectors (legal, health, and social services).

The U.S. public health system appears to be able to reduce disparities between African Americans and whites once they enter the health system with a serious condition (although disparities for Hispanics with serious health concerns remain). It is less able to reduce disparities through detection and treatment of the early stages of disease. These disparities in the origins and early stages of illness invoke concepts of "fundamental social causes of disease" that have been noted by House and colleagues[13] and were more recently elaborated by Link and Phelan:

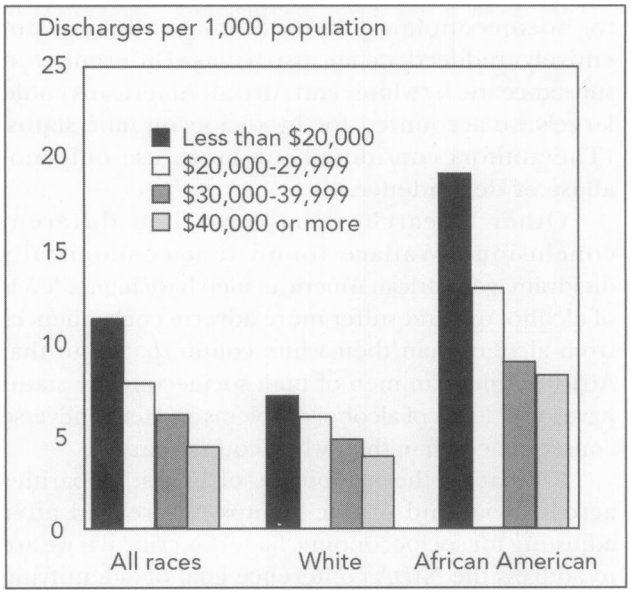

Figure 1. Avoidable hospitalizations among adults 18-64 years of age, 1989-91

Note: Rates are age-adjusted.
Source: Centers for Disease Control and Prevention. Decennial census. National Center for Health Statistics, National Hospital Discharge Survey. U.S. Census Bureau; 1990. In: Pamuk E, Makuc D, Heck K, Reuben C, Lochner K. Socioeconomic status and health chartbook. Health, United States, 1998. Hyattsville, MD: National Center for Health Statistics; 1998. p. 135.

> The reason for such persistent associations, and the essential feature of fundamental social causes, is that they involve access to resources that can be used to avoid risks or to minimize the consequences of disease once it occurs. We define resources broadly to include money, knowledge, power, prestige, and the kinds of interpersonal resources embodied in the concepts of social support and social network .... A fundamental social cause of disease involves resources that determine the extent to which people are able to avoid risks for morbidity and mortality. Because resources are important determinants of risk factors, fundamental causes are linked to multiple disease outcomes through multiple risk-factor mechanisms.[14]

These comments underscore two major lessons from the literature on social disparities in health status. First, a sufficient number of studies provide evidence of a continuous gradient between social position and health outcomes. There does not appear to be an absolute threshold of disadvantage (poverty); that is, "notions of absolute poverty do not, on their own, provide an adequate explanatory framework."[9] Rather, disadvantage is related to one's relative position. Across socioeconomic levels, for almost all populations and all societies, people of higher social position live longer and remain healthier than people of lower position. This concept of relative inequities across the socioeconomic spectrum should be incorporated into conceptual models.

Second, disparities may exist and persist because people of higher socioeconomic status have a wider range of resources—money, knowledge, prestige, power, social connections—that can be used to their health advantage. Because of the general nature of these resources, they can be used to predict health no matter what the current risk, treatment, or disease. Studying this socioeconomic gradient can shed light on how relative positions of power, opportunity, and material resources can affect health conditions.

Disparities in Health Status by Race and Ethnicity

Ethnic disparities in mortality are large in the United States (table 1). Mortality for Asian-Pacific Islanders for all diseases is lower than for non-Hispanic whites. Mortality for Hispanic Americans is lower than for non-Hispanic whites, except for diabetes, HIV/AIDS, and cirrhosis of the liver, all of which can be related to alcohol and other forms of substance use and abuse. Compared with non-Hispanic whites, American Indians have lower mortality from heart disease, cancer, stroke, pulmonary disease, and HIV/AIDS but higher death rates for the remaining five leading causes of death. Limitations to these data include misclassification of non-black minorities as white on death certificates, resulting in underestimated death rates for Asian-Pacific Islanders, American Indians, and Hispanic Americans.[15,16,17]

African Americans have higher mortality rates than whites in the United States. Mortality from all causes for African Americans is 1.58 times that of whites of comparable age, 5.75 higher for HIV/AIDS, and 2.40

Table 1. Age-adjusted mortality ratios for ethnic groups for the 10 leading causes of death in the United States, 1996

Cause	White (rate per 100,000)	African American/ White ratio	American Indian/ White ratio	Asian-Pacific Islander/ White ratio	Hispanic American/ White ratio
All causes	**466.8**	**1.58**	**0.98**	**0.59**	**0.78**
1. Heart disease	129.8	1.47	0.78	0.55	0.68
2. Cancer	125.2	1.34	0.68	0.61	0.62
3. Stroke	24.5	1.80	0.86	0.98	0.80
4. Pulmonary disease	21.5	0.83	0.59	0.40	0.41
5. Unintentional injuries	29.9	1.23	1.93	0.54	0.97
6. Flu and pneumonia	12.2	1.45	1.15	0.81	0.80
7. Diabetes	12.0	2.40	2.32	0.73	1.57
8. HIV/AIDS	7.2	5.75	0.58	0.31	2.26
9. Suicide	11.6	0.57	1.12	0.52	0.58
10. Liver cirrhosis	7.3	1.27	2.84	0.36	1.73

Source: National Center for Health Statistics.

higher for diabetes. With the exception of pulmonary disease and suicide, all of the leading causes of death are higher among African Americans. Similar analyses conducted in 1950 show that African American to white mortality ratios have been essentially stable for the past 45 years. In 1950 as in 1996, the death rate for all causes for African Americans was 1.6 times that of whites. It was higher for all causes of death examined except suicide and, in 1950 only, cirrhosis of the liver.[12]

A frequently asked question is how much of the disparity between African Americans and whites is accounted for by differences in socioeconomic levels. As Williams notes, "Socioeconomic status is not merely a confounder of racial disparities in health but part of the causal pathway by which race affects health."[3] To understand racial and ethnic differences in mortality, it is essential to examine relative levels both before and after adjustment for socioeconomic factors, not just adjusted values alone. Doing so helps in estimating the magnitude of racial and ethnic differences that could be eliminated by reducing economic disparities. Through this exercise, we can better determine whether there is evidence for residual differences and pathways that do not operate through socioeconomic processes.

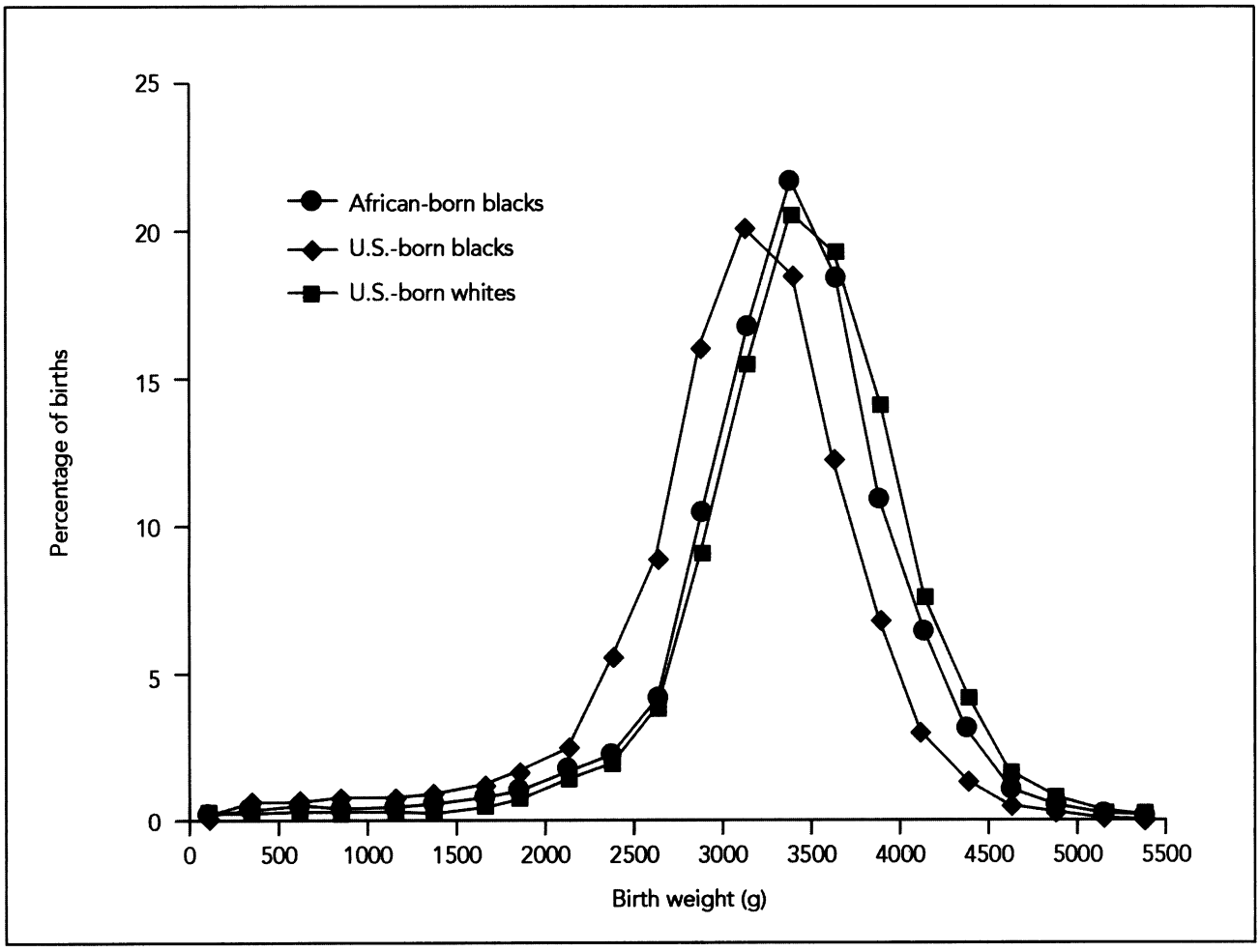

Figure 2. Distribution of birthweights among infants of U.S.-born white and black women and African-born black women in Illinois, 1980-95

Note: The calculation of frequencies was based on all singleton births in Illinois. The study population included the infants of 3,135 black women born in sub-Saharan Africa, 43,322 black women born in the United States (a sample that included 7.5% of the total number of black women giving birth in Illinois), and 44,046 white women born in the United States (2.5% of the total number of white women giving birth in Illinois).
Source: David RJ, Collins JW. Differing birth weight among infants of U.S.-born blacks, African-born blacks, and U.S.-born whites. N Engl J Med 1997;337:1209-14, 1213.

How much of the disparity in mortality rates can be accounted for by socioeconomic status? The National Longitudinal Mortality Study provides data on heart disease rates among adults in the United States between 1979 and 1989.[12] As in other studies, death rates from heart disease varied inversely with family income. For 25- to 64-year-olds, heart disease mortality for the poorest groups studied was approximately three times that for higher income groups. Income-related gradients in heart disease were similar across sex, race, and ethnic groups. There was also evidence of significant disparity for race and ethnicity, after adjusting for age and income. Within each income level, non-Hispanic African American women had higher death rates from heart disease than non-Hispanic white women. This was also true for African American men between 25 and 64; for men 65 and older, the death rate for white men was the same as or higher than that for African American men at the same income level. These data and others suggest that for a given socioeconomic level, race and ethnic disparities exist for both men and women.

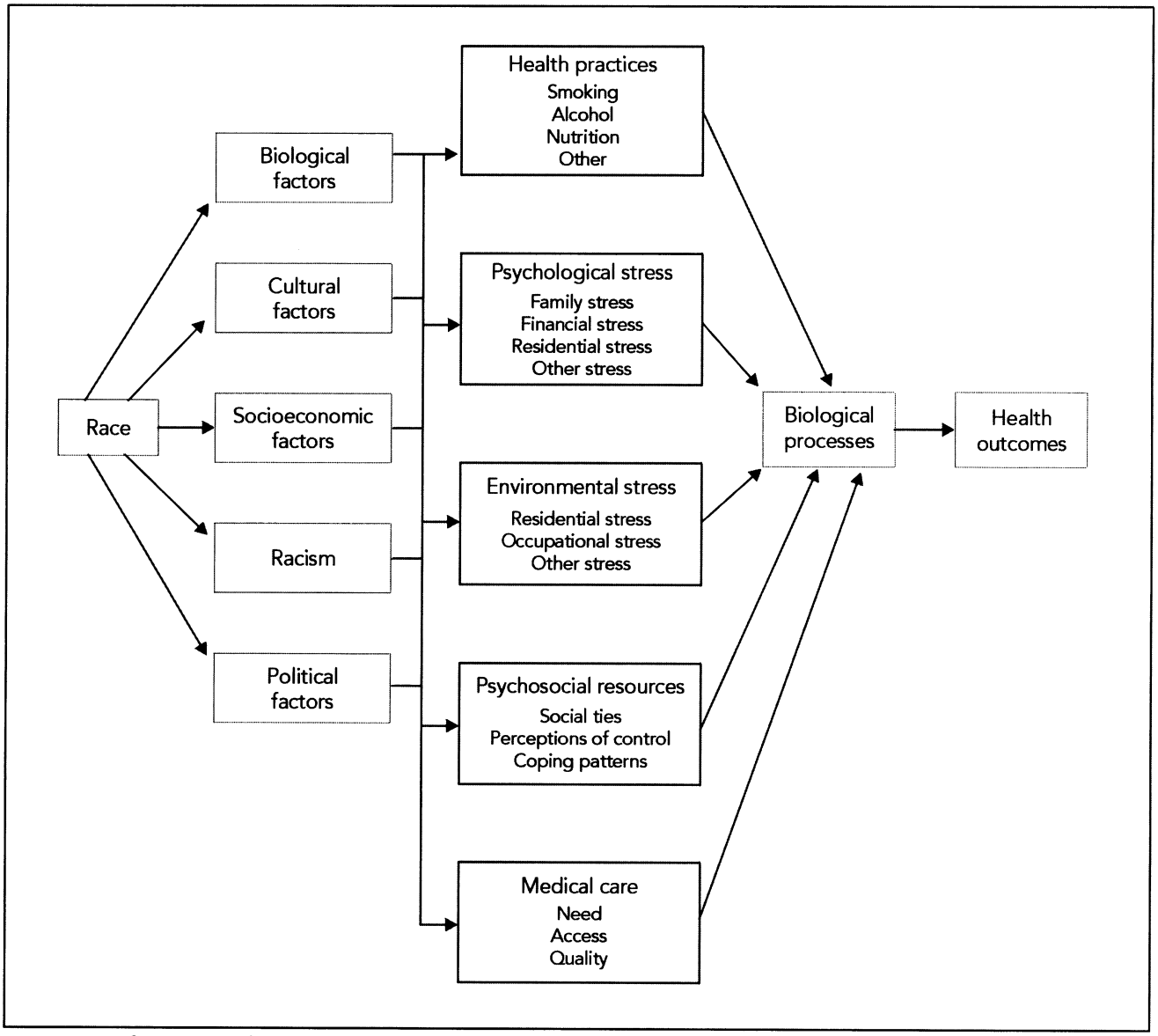

Figure 3. A framework for understanding the relationship between race and health

Source: King G, Williams DR. Race and health: a multidimensional approach to African-American health. In: Amick BC, Levine S, Tarlov AR, Walsh DC, editors. Society and health. New York: Oxford Univ. Press; 1995. p. 107.

Is there evidence of a biological origin to these disparities? Babies born to African American women in the United States are, on average, more than 100 grams lighter and approximately twice as likely to be of low birthweight (less than 2,500 grams) than babies of non-Hispanic white women.[18] Several investigators have raised the possibility that these differences may be explained by genetic factors.[19,20] An alternative hypothesis was investigated by David and Collins,[21] who used Illinois birth certificate data for 1980-95 to compare the birthweight distribution for babies born to white women born in the United States with those born to black women born in Africa. The birthweight distribution for these two groups is very similar, different only at the extreme end of the distribution (figure 2). In contrast, birthweights of infants born to black mothers born in the United States are considerably lower (on average, by several hundred grams) than those of infants of white mothers born in the United States or black mothers born in Africa. These data suggest that there is something related to the experience of being African American in the United States, not a genetic factor, that is associated with lower birthweights. There are, of course, limitations to this work, most notably the use of vital statistics and the potential for "healthy immigrant effects." The data do "challenge the genetic concept of race as it relates to birthweight,"[21] however, and indicate the need to consider other, nongenetic explanations for disparities in health outcomes across different racial and ethnic groups.

DISCUSSION

King and Williams have developed a useful conceptual framework that considers socioeconomic, biological, and other factors that could account for disparities in health outcomes across races (figure 3). The model illustrates that "race is a proxy for biological, cultural, socioeconomic, and sociopolitical factors, as well as for racism."[22] Racial and ethnic differences in health and health behaviors, including substance use and abuse, may reflect some biological differences, but socioeconomic factors, cultural factors, and experiences of prejudice and discrimination, both institutional and individual, are more likely at work.

The three leading explanations for racial and ethnic disparities in health outcomes appear to be socioeconomic disparities, racism and particularly segregation, and the context in which minorities find themselves, particularly in urban areas. Researchers also need to consider cultural factors, which are particularly relevant for Hispanic Americans, and how they may operate through both biological and social processes to affect health outcomes. Research guided by such a conceptual framework should yield valuable new insights into the origins of disparities in health status and in substance use and abuse in the United States.

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